CANADIAN TIRE CORPORATION LTD.
EVALUATION OF ENVIRONMENTAL CONTROL SYSTEMS
BRANDON CANADIAN TIRE STORE

MAY, 1994

PREPARED BY
UMA ENVIRONMENTAL
A DIVISION OF UMA ENGINEERING LTD.
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UMA JOB NO. 15 73 9384 001 01 01

UMA Environmental
A Division of UMA Engineering Ltd.

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Our File: 15 73 9384 001 01 01

May 10, 1994

Canadian Tire Corporation Ltd.
2180 Yonge Street
Toronto, Ontario
M4P 2V8

Attention: **Mr. Steven Stewart, P.Eng.**

Dear Sir:

Reference: **Report on Evaluation of Environmental Control Systems**
Brandon Canadian Tire Store

1.0 INTRODUCTION

1.1 AUTHORIZATION

At your request, UMA Environmental (UMAE) were authorized to evaluate the existing soil vapour extraction systems (VES) at the Brandon Canadian Tire Associate Store. The evaluation involved an assessment of the effectiveness and continued need for the operation of the VES system.

1.2 SCOPE OF WORK

This review was conducted in three stages involving:

STEP 1 - A review of all information available including previous investigations, monitoring data and design information related to the Canadian Tire site.

STEP 2 - A field inspection to monitor the vapour extraction units, and to check piezometers for vapour concentrations, depth to water table and presence of free product. Interviews with Mr. Walter Kwan, P.Eng. of Geokwan Environmental Ltd. and Mr. David Ediger, P.Eng. of Manitoba Environment were also held during this step.

STEP 3 - Assessment of all information, data and preparation of this summary report.

1.3 METHODOLOGY

1.3.1 STEP 1

Canadian Tire Corporation (CTC) Ltd. supplied UMAE with the following Geokwan Environmental (GE) reports:

- Progress Report No. 1 dated November 28, 1990
- Progress Report No. 2 dated June 11, 1991
- Progress Report No. 3 dated June 26, 1991
- Progress Report No. 4 dated October 15, 1991
- Site Remediation - Vapour Management for Year 1992, dated November 18, 1992

The reports provided UMAE with sufficient background information to mobilize for the field inspection.

1.3.2 STEP 2

UMAE personnel, John Leszkowicz, P.Eng. and Ricardo Lopez, C.E.T., visited the site on April 18 and 19, 1994. All vapour extraction units were monitored on April 18 and then shut down. Selected piezometers connected to the vapour extraction piping were monitored for total combustible vapours and total organic vapours, depth to water table and thickness of free product if any (see attached site plan from Geokwan monitoring report). The total combustible vapours were measured with a Gastech Model 1238 combustible gas detector calibrated with hexane and organic vapours measured with an HNu Model HW-101 photoionization analyzer calibrated with isobutylene. Water and product levels were measured with a Marine Moisture Control (MMC) Co. Inc. oil-water interface probe. The monitoring data is appended to this report.

A sample of product was obtained from RW3, and a sample of vapours from VEU No. 5 was taken with a tedlar air bag. The air sample was delivered to the Environmental Sciences Centre in Winnipeg to determine if benzene, toluene, ethylbenzene and xylene (BTEX) are present. A copy of the preliminary laboratory results are attached. The analysis quantified benzene at 77 ppm and toluene at 37 ppm. Ethylbenzene and xylene were below the method detection limits.

No buildup of vapours was detected overnight. The VEU's were reactivated just after noon on the 19th of April.

A meeting between UMAE and Walter Kwan of Geokwan Environmental (GE) Ltd. was held on April 20, 1994. Mr. Kwan provided UMAE with a copy of his October 29, 1993 monitoring report. This report documented the last monitoring event at the Canadian Tire property by GE. Mr. Kwan also provided background correspondence regarding the decision to implement the vapour extraction systems in November, 1990. The correspondence includes:

- Geokwan letter dated October 18, 1990 to Mr. Dave Ediger, P.Eng. of Manitoba Environment

- Geokwan letter dated November 1, 1990 to Mr. Brian Durupt of Manitoba Environment

- Letter dated November 11, 1990 from Mr. Dave Ediger, P.Eng. of Manitoba Environment to Geokwan

On April 21, 1994 UMAE met with Dave Ediger in his office. At this meeting it was established that:

- No environmental order has been issued by Manitoba Environment to clean up the site. The vapour extraction systems are approved as a means to control the migration of vapours and to minimize risk to the occupants and users of the Canadian Tire Store.

- Petro Canada monitors the site north of the Canadian Tire Store and have a liquid recovery and vapour extraction recovery system ongoing.

- Mr. Ediger believes Petro Canada and Canadian Tire should have an agreement in place to share all monitoring information.

- Mr. Ediger feels that a long term strategy to deal with future remedial efforts related to the refinery and contamination remaining from that operation would be best addressed by a Steering Committee involving:
  - Canadian Tire
  - Petro Canada
  - City of Brandon
  - Manitoba Environment
  - Other adjacent landowners (Burger King, Murray Chev-Olds)

Mr. Ediger provided UMAE with additional information and correspondence from his files on the Canadian Tire property. These included:

- A copy of a 1985 O'Connor & Associates report on the investigation of the former Gulf Canada refinery.

  A copy of a November 3, 1990 letter from Geokwan to Mr. Hugh Law, Canadian Tire, regarding a proposed Stage 2 remediation plan.

- A copy of a fax dated October 10, 1991 from Hugh Law of Canadian Tire to Dave Ediger seeking information on the status of plans for all stakeholders with property on the former Gulf refinery site.

- A copy of draft minutes of a meeting prepared by Nabil Guirguis, P.Eng. of Canadian Tire. The meeting was held November 9, 1993 and involved Dave Ediger, Manitoba Environment and Rick Carr and Nabil Guirguis of Canadian Tire.

2.0 SUMMARY OF FINDINGS

UMAE's monitoring of the vapour extraction system and selected monitoring wells (piezometers) indicated the following:

- Free product was present in the subsurface at a number of locations.

- Vapour concentrations in the subsurface were not found at elevated levels. However, the presence of ice and the early spring high water table conditions likely explain why we did not see the high soil vapour levels that have been measured during previous summers.

- Benzene and toluene are present in the stack discharge from the VES.

- Some monitoring wells were in need of repair at the ground surface where the caps were broken or missing. This condition results in "short circuiting" of the vapour extraction system making it less effective.

- One vapour extraction unit on the kiosk of the gas bar (V6) appeared to be operating, but a plugged intake or exhaust was not allowing movement of air from the subsurface.

Following our interviews with Geokwan and Manitoba Environment officials, it became clear that the systems installed to date are not intended to clean up the soil or groundwater contamination at the site. They are intended to protect the public health and safety of occupants and customers of the Canadian Tire store.

3.0 CONCLUSIONS

On the basis of our review of available data, our on-site monitoring and discussions with Geokwan and Manitoba Environment we conclude that:

1. The vapour extraction system as installed appears to be performing adequately and serving the purpose for which it was installed. However, some maintenance is required.

2. The presence of free product in monitoring wells near the Canadian Tire store indicates that the potential for combustible vapours still exists.

3. High water table conditions and the climate in Brandon make for freeze-up problems in subsurface monitoring wells. This tends to prolong the time required to diminish the levels of vapours in the subsurface.

4. The vapour extraction system is intended as a risk management tool. Long term operation of the system will partially remediate soil contamination, but this process will not effect complete remediation.

5. There is no evidence that vapour or product plumes are moving off site at the present time.

4.0 RECOMMENDATIONS

UMAE present the following recommendations for consideration by Canadian Tire Corporation Ltd.:

1. Maintenance of the vapour extraction fan units and the monitoring well entries should be conducted on at least a quarterly basis.

2. Recovery and disposal of free product in monitoring wells on the property should continue, but a more permanent means of disposal, approved by the Manitoba Environment Department, is required in the long term.

3. Quarterly monitoring of all monitoring wells or piezometers for vapour concentration and fluid levels is required to maintain a current understanding of subsurface conditions and to confirm that no migration of contaminated vapours or product is moving off the property.

4. If total combustible vapour concentrations continue to remain below 10% LEL (1100 ppm) for a period of three months in the parking lot piezometers (Trenches 1 through 4), Canadian Tire may wish to remove the active vapour extraction system and convert it to a passive system. We recommend, however, that the systems installed immediately around the store be maintained as an active system until combustible vapour levels are 2% LEL (220 ppm) or less.

5.0 CLOSURE

The findings and recommendations contained in this report were based on the limited investigation conducted by UMAE to date. The information and data contained herein, including without limitation, the results of any sampling and analyses conducted by UMAE pursuant to its agreement with Canadian Tire, have been set forth to the best of UMA's knowledge, information and belief.

UMAE shall not by the act of issuing this report be deemed to have represented thereby that any sampling and analyses conducted by it have been exhaustive, and persons relying on the results thereof do so at their own risk.

Should any questions arise regarding the information presented herein, please contact Mr. Tom Wingrove, P.Eng. at (204) 284-0580.

Yours truly,

UMA ENVIRONMENTAL

T. Wingrove, P.Eng.
Regional Manager
UMA Environmental
/dh

APPENDIX
FIELD MONITORING DATA

TABLE A.1
BRANDON CANADIAN TIRE STORE
VAPOUR EXTRACTION UNIT MONITORING UPON ARRIVAL TO SITE
APRIL 18, 1994

Vapour Extraction Unit*	Total Combustible Vapour Concentration*	Total Organic Vapour Concentration**	Estimated Extraction Rate (L/day)	Comments
V3	10 ppm	5 ppm	1.2	Good suction along trench
V4	ND	ND	-	
V5	-	-	-	Unit had been unplugged
V6	ND	ND	-	No exhaust, possibly plugged?
V7	325 ppm	22 ppm	6.7	Suction poor at some piezometers
V8	ND	2 ppm	0	
After monitoring all units shut down for the night.				

NOTES:

* Unit No. as shown on Geokwan Drawings.

** Combustible vapours measured with Gastech Model 1238.

** Organic vapours measured with HNU PID Model HW-10l.

ND = Not detected.

TABLE A.2
BRANDON CANADIAN TIRE STORE
VAPOUR EXTRACTION UNIT MONITORING AFTER START UP
APRIL 19, 1994

Vapour Extraction Unit*	Total Combustible Vapour Concentration*	Total Organic Vapour Concentration**	Estimated Extraction Rate (L/day)	Comments
V3	Trace	1.8 ppm	0	
V4	ND	ND	-	
V5	550 ppm	35 ppm	4.3	Air sample taken
V6	ND	ND	-	Unit appears to run-blocked
V7	ND	ND	-	
V8	275 ppm	15 ppm	5.7	
All units left running upon leaving the site.				

NOTES:

* Unit Nos. as shown on Geokwan Drawings.

* Combustible vapours measured with Gastech Model 1238.

** Organic vapours measured with HNU Model HW-10l.

ND = Not detected.

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Engineers, Planners & Surveyors

GROUND WATER/VAPOUR MONITORING FIELD DATA

Client: CANADIAN TIRE CORPORATION LTD.

Project: BRANDON CDN TIRE STORE VES | Job No.: 9384-001-01-01

Technician: JL/RL | Date: APRIL 18-19, 1994

MW = Monitoring Well G = Gastech H = NaH N.D. = Not Detected N.M. = Not Measured.

Time	Location	Vapour Concentration	Reference Point	Depth to NAPL	Depth to Water	Remarks
	MW 6	N.D.	Top of sheet metal (stove) pipe	–	–	blocked (ice) @ 0.9m
	MW 13	N.M.	ground		-	blocked @ 1.14m
	MW 15	G 80ppm / H N.D.	"		-	PVC clean out broken blocked @ 0.49m
	MW 20	G 195ppm / H N.D.	"		-	blocked @ 0.71 m.
	MW 22	G 25ppm / H N.D.	"		-	blocked @ 0.84 m
	MW 23	ND	"		2.62m	
	MW 25	trace	Top of Stove Pipe		1.87m	loose cap. damaged sheet metal
	MW 27	G 100ppm / H 0.1ppm	ground		2.615m	
	MW 29	G 125ppm / H 0.1ppm	"			blocked @ 1.155m
	MW 44	G 175ppm / H N.D.	"		2.195m	
	MW 50	ND	"		NM.	
	MW 53	ND	"			blocked @ 1.06m
	MW 54	ND	"		NM	
	MW 57	G 350ppm / H 2 ppm	"	2.765m	2.92 m	HC thickness 0.155m
	MW 58	NM	"		2.745m	
	MW 59	NM	"		2.74 m	
	MW 60	NM	"		2.72 m	
	MW 61	NM	"	2.71 m	2.73m	HC thickness 0.02m
	MW 62	NM	"		NM	covered under packaged peat moss
	MW 63	NM	"		-	blocked @ 1.10m
	MW 64		"		-	ice @ 1.075m
	MW 65	trace	"	2.715m	2.755m	HC thickness 0.04m
	MW 66	NM	"		NM	covered under packages of soil
	MW 67	G 35ppm / H trace	"		-	blocked @ 1.14m.
	MW 68	ND	"		-	blocked @ 0.87m.

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Project: BRANDON VES | Job No.: 9384-001-01-01

Technician: JL/RL | Date: APRIL 18-19, 1994

Time	Location	Vapour Concentration	Reference Point	Depth to NAPL	Depth to Water	Remarks
	MW 69	ND.	ground		1.66 m	
	70	ND	"	1.565	1.665	HC thickness 0.1m PVC cap broken
	73	NM	"		-	blocked @ 0.76m.
	75	NM	"		-	blocked @ 0.79m.
	77	NM	"		-	blocked @ 0.7m. cap + cleanout missing
	79	NM	"		-	blocked @ 1.17m
	81	NM	"		-	blocked @ 0.8m
	83	NM	"		-	blocked @ 1.0m
	85	NM	"		-	blocked @ 0.34m
	89	NM	"		-	blocked @ 0.4m
	90	NM	"		-	blocked @ 0.45m
	91	NM	"		-	blocked @ 0.5m
	94	NM	"		-	blocked @ 0.54m
	96	NM	"		-	blocked @ 0.6m
	98	NM	"		-	blocked, ice @ 0.87m
	100	NM	"		2.265m	
	106	ND	"		2.775m	rusty colored water
	107	ND	"	2.72 m	2.845m	HC thickness 0.125m
	108	trace	"		2.670m	
	109	trace	"		2.603m	
	110	NM	"		2.508m	
	111	NM	"		2.470m	oxidized, rusty colored mud on probe
	112	NM	"		2.455m	
	113	NM	"		2.405m	
	114	NM	"		2.31 m	

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GROUND WATER/VAPOUR MONITORING FIELD DATA

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Technician: JL/RL | Date: APRIL 18-19, 1994

Time	Location	Vapour Concentration	Reference Point	Depth to NAPL	Depth to Water	Remarks
	MW 115	NM	ground		–	blocked @ 1.03m
	116	NM	"		–	blocked @ 1.26m
	117	NM	"		–	blocked @ 0.97m
	119	ND	"	2.73m	2.805m	HC thickness 0.075m
	122	ND	"		2.245m	
	129	G 0ppm / H 0.1ppm	"		1.86m	
	130	G 990ppm / H 11.8ppm	"		–	blocked ice @ 1.65m
	137	ND	"		2.48m	
	148	ND	"		–	blocked @ 1.2m
	149	ND	"		–	blocked @ 1.14m.
	150	ND	"			blocked @ 1.06m
	151	ND	"	2.625m	2.855m	HC thickness 0.23m
	152	–	"		–	car parked
	153	ND	"		–	blocked @ 1.03m
	154	–	"		–	cap jammed
	155	ND	"		2.515m	
	156	ND	"			blocked @ 1.22m.
	157	ND	"	2.27m	2.28m	HC thickness 0.01m
	158	ND	"			blocked @ 1.3m
	159	ND	"		1.98m	
	160	ND	"		1.79m	broke through ice
	161	ND	"		–	blocked @ 0.71m
	162	ND	"		–	cap jammed
	163	ND	"			blocked @ 1.09m
	164	ND	"			blocked @ 0.79m.
	165	ND	"			blocked @ 0.73m.

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GROUND WATER/VAPOUR MONITORING FIELD DATA

Client: CANADIAN TIRE CORPORATION LTD.
Project: BRANDON CTS VES | Job No.: 9384-001-01-01
Technician: JL/RL | Date: APRIL 18-19/94.

Time	Location	Vapour Concentration	Reference Point	Depth to NAPL	Depth to Water	Remarks
	MW 166	ND	ground		-	blocked @ 0.8m
	167	ND	"		-	blocked @ 0.69m
	168	ND	"		-	blocked @ 0.76m
	169	ND	"		-	blocked @ 0.79m
	170	ND	"		-	blocked @ 0.75m
	171	G 25ppm / H 0.3ppm	"	2.06m	2.095m	HC thickness 0.035m
	172	ND	"		1.85m	
	173	ND	"		-	blocked @ 1.09m
	174	ND	"		-	blocked @ 0.98m
	175	ND	"		-	blocked @ 0.77m
	176	ND	"		2.64m	
	177	ND	"		-	blocked @ 0.91m.
	178	ND	"		2.49m	
	179	ND	"		2.255m	
	180	G 75ppm / H 1.4ppm	"		2.05m	
	183	ND	"		2.6m	
	184	G 80ppm / H ND	"		3.225m	
	186	-	"		-	cap jammed
	187	NM	"		-	blocked @ 1.05m.
	CP PIPE	-	-		-	locked casing protector
	RW 1	ND	MH RIM		1.40m	
	RW 2	NM	ground		2.405m	
	RW 3	NM	ground	2.74m	2.755m	HC thickness 0.015m SAMPLE TAKEN
	RW 4	-	ground		-	unable to open. Bolts won't budge.
	RW 5	ND.	Top of CSP		1.43m	ice floating on water.

RW = Recovery Well.

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	168	ND	"		-	blocked @ 0.76m
	169	ND	"		-	blocked @ 0.79m
	170	ND	"		-	blocked @ 0.75m
	171	G 25ppm / H 0.3ppm	"	2.06m	2.095m	HC thickness 0.035m
	172	ND	"		1.85m	
	173	ND	"		-	blocked @ 1.09m
	174	ND	"		-	blocked @ 0.98m
	175	ND	"		-	blocked @ 0.77m
	176	ND	"		2.64m	
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	178	ND	"		2.49m	
	179	ND	"		2.255m	
	180	G 75ppm / H 1.4ppm	"		2.05m	
	183	ND	"		2.6m	
	184	G 80ppm / H ND	"		3.225m	
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	RW 1	ND	MH RIM		1.40m	
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	RW 5	ND.	Top of CSP		1.43m	ice floating on water.

RW = Recovery Well.

REV. 04/92

ENVIRONMENTAL SCIENCES CENTRE
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FAX TRANSMITTAL

PLEASE DELIVER AS SOON AS POSSIBLE

TO: TOM WINGROVE
UMA

FAX # 475 3646
# of pages 5 including this one

MESSAGE:

Results & chromatograms for air sample.

ph 945 4181

cc: T. Wingrove

Doug - Gen. File

9384-001-01-01

SENT BY: E. RAMDAHIN DATE: May 2/94

ANALYSIS OF Air - Filter

Wingrove T
UMA Engineering
1479 Buffalo Pl

Winnipeg MB R3T 1L7

Date Received: 94/ 4/21
Date Reported: NONE
Date Printed: 94/ 5/ 2

Submitted By:Leszkowicz J

Lab No.	Test	Results	Date Analyzed
94-A5524	Sampling Point Job #9384-001-01-01		
94-A5524	Sample I.D. Tedlar Bag-VEU #5 Hnv Reading 35ppm		
94-A5524	Location Brandon		
	Special Project Organic	see below	94/ 4/22 EDR

SAMPLE COMMENT (ORGANIC):

Benzene	77. ppm	Toluene	37. ppm
Ethylbenzene	< 10. ppm	p-xylene	< 10. ppm
m-xylene	< 10. ppm	o-xylene	< 10. ppm

(Chromatograms & interim report Faxed May 2/1994)

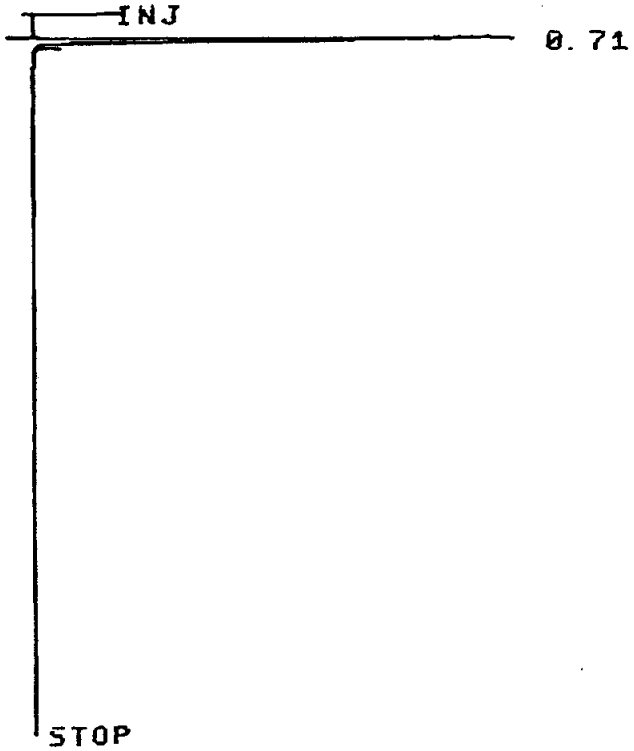
Chemist Signature E. Romolaki 945-2503 Date May 2/94

THIS IS AN INTERIM REPORT. FINAL RESULTS MAY VARY DUE TO QUALITY CONTROL VERIFICATION. A FINAL REPORT WILL BE ISSUED AND SIGNED WHEN ALL THE RESULTS ARE COMPLETED.

For information phone 945-2503

HP 3380A
DLY OFF STOP 20 REJECT OFF
MV/M .30 ATTN 8

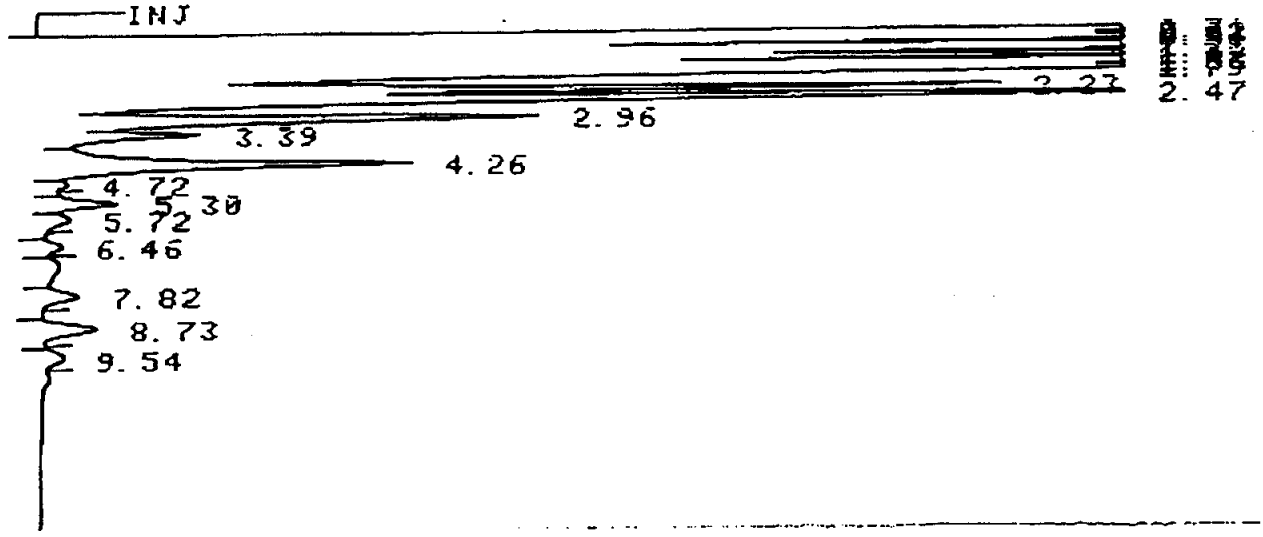
ICC air



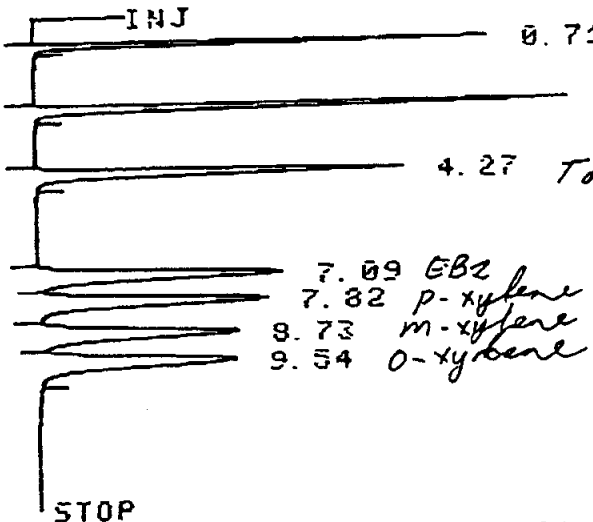
RT	TYPE	AREA	AREA %
.71		15525	100.

HP 3380A
DLY OFF STOP 20 REJECT OFF
MV/M .30 ATTN 8

ICC 94-05524



.05 µl → 500 ml (≈ 28. ppm each component)



AREA %

RT	TYPE	AREA	
.71		16579	8.993
2.47		29063	15.22
4.27		27972	15.17
7.09		27642	14.99
7.82	M	29236	15.32
8.73	M	26873	14.58
9.54	M	28983	15.72

HP 3380A
DLY OFF
MV/M .30

STOP 20
ATTN 8

REJECT OFF

ENVIRONMENTAL SCIENCES CENTRE
W. M. WARD BUILDING
745 LOGAN AVENUE
WINNIPEG, MANITOBA R3E 3L5
TEL: (204) 945-3705 FAX: (204) 945-0763
An Operation of the Economic Innovation and Technology Council

Request for Chemical Determination

General Inquiry (204) 945-2417
Data Interpretation 945-2503

FOR LABORATORY USE ONLY (SHADED AREAS)
LAB. COMMENTS:
LAB NO.:
DATE RECEIVED:
TASK NO.:

SAMPLE TYPE

PLEASE PRINT AND PRESS FIRMLY

☐ Air - Indoor	☐ Biological - Urine	☐ Food Product	☐ Rock	☐ Man Made Materials / Solids
☒ Air - Outdoor	☐ Biological - Vegetation	☐ Oil	☐ Solvent	☐ Man Made Materials / Liquids
☐ Biological - Bloods	☐ Biological - Wastes	☐ Oil Waste	☐ Whole - Blood	☐ Other Specify
☐ Biological - Extracts	☐ Compressed Gases	☐ Soil	☐ Water - Ground	☐ Other Specify
☐ Biological - Organisms	☐ Dust	☐ Serum	☐ Water - Precipitation	☐ Other Specify
☐ Biological - Aquatic Plants	☐ Fuel - Diesel	☐ Scale	☐ Water - Surface	
☐ Biological - Tissues	☐ Fuel Gasoline	☐ Sediment	☐ Water - Waste	

Sample Identification and/or Listing of Multiple Samples

LAB. NO.:	IDENTIFICATION	LAB. NO.:	IDENTIFICATION
	TEDLAR BAG - VE4 #5 HnU reading 35 ppm. Job # 9384-001-01-01		

Date Sampled: APRIL 19, 1994 @ 11:30 a.m. Date Submitted: APRIL 21, 1994

Location: BRANDON VAPOUR EXTRACTION SYSTEM (Legal Description, Street Address or Town) Rural Municipality of:

Sample Submitted By: JOHN LESZKOWICZ, UMA ENVIRONMENTAL

E.S.C. Cust. No.

REPORT TO BE SENT TO	BILLING ADDRESS (if different)
NAME: TOM WINGROVE, P.Eng.	same
COMPANY AGENCY OR GOV'T DEPT.: UMA Environmental, A Div. of UMA Engineering Ltd.	
STREET NO. & NAME OR P.O. BOX NO.: 1479 BUFFALO Place	
CITY OR TOWN: Winnipeg, Mb. POSTAL CODE: R3T 1L7	
PHONE NO.: 284-0580 FAX NO.: 475-3646	

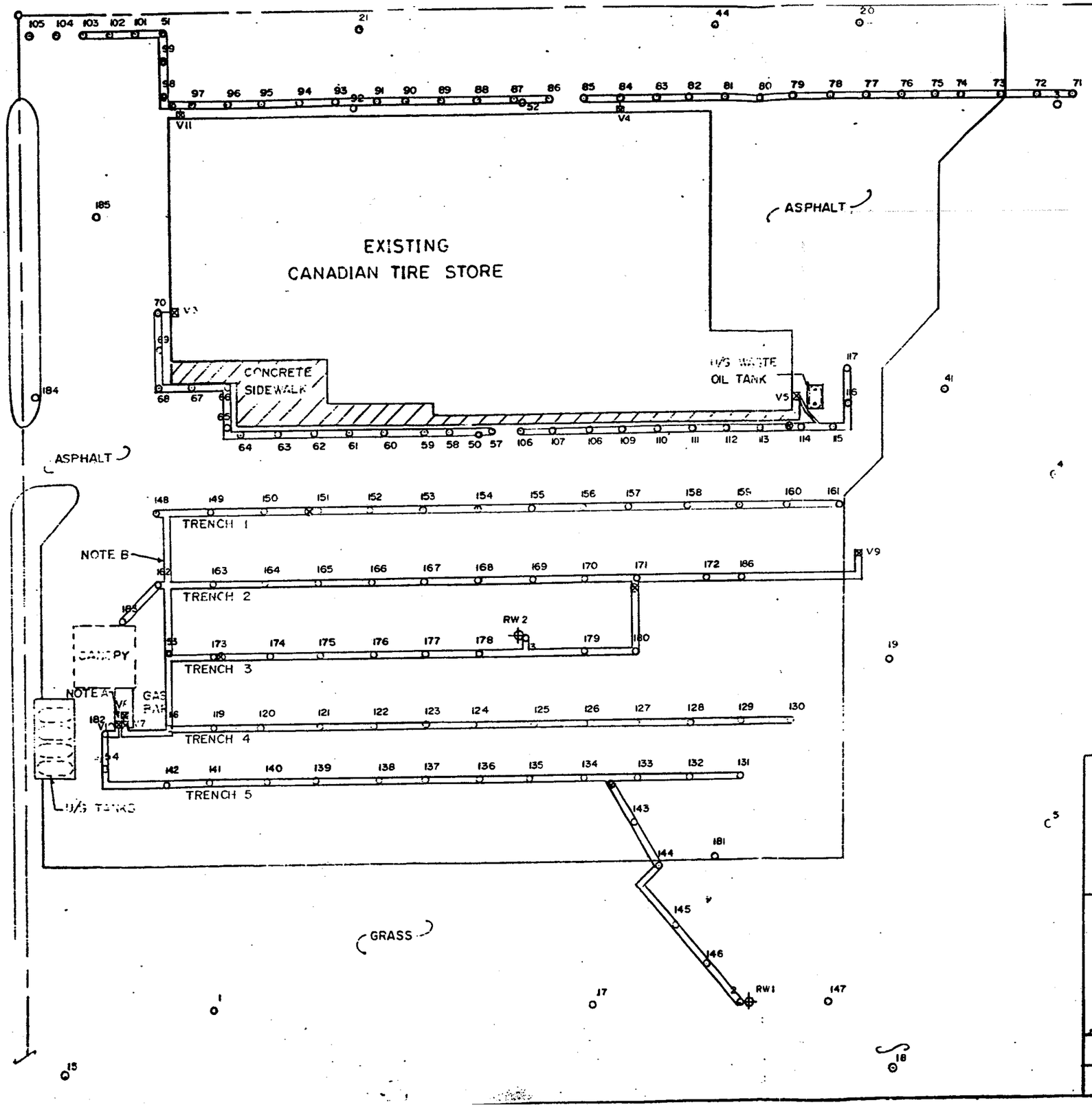
Reason for sampling (Describe briefly or provide attachment with this form)
to check for BTEX and purgeable hydrocarbons in a vapour extraction exhaust.

Analyses required and/or Test No. quantity of BTEX and total purgeables Special Project - Organic 35035

Submitter's Signature John Leszkowicz

POSSIBLE LEGAL ACTION: ☐ YES ☒ NO
PRIOR NOTIFICATION REQUIRED FOR LEGAL SAMPLES

ACCOUNTS COPY



NOTE A - V7 MOVED FROM FORMER LOCATION TO TOP OF GAS BAR AS OUTLINED IN REPORT.

NOTE B - NEW TRENCHES INSTALLED AS OUTLINED IN REPORT.

LEGEND

- o MONITORING WELL
- ⊕ RECOVERY WELL
- ⊠ VAPOUR EXTRACTION UNIT
- ⊗ SOIL PROBE POINT

Geokwan Environmental Ltd

SITE REMEDIATION STAGE 1 & 2
VAPOR EXTRACTION
CANADIAN TIRE PROPERTY
BRANDON, MANITOBA

SCALE: 1"=60'	MADE: RK	PLATE: PR4-1
DATE: DEC 6/90	CHKD: WK	JOB: E238 & E239